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NEW AFRICAN DIPTERA

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Descriptions of a number of new African flies are given in the following pages. Many of these have been in my possession for a number of years, awaiting additional material. The types are mostly in The American Museum of Natural History, but some of them have been returned to Mr. H. K. Munro, who has expressed the intention of depositing them in the South African Government Collection.

Metopiidae

LAMPROMETOPIA MACQUART

MACQUART, 1846, 'Dipt. Exot.,' Suppl. 1, p. 158.

Hoplocephalella VILLENEUVE, 1913, Rev. Zool. Afr., III, p. 112.

This genus is related to *Hoplocephala* Macquart, but is readily separated by the presence of only one anterodorsal bristle on the middle tibiae. In all the species the eyes are conspicuously haired in the males, but the hair is so short in some of the females that the eyes appear to be bare. While there is considerable variation in the width of the frontal vitta in the males, the females are so similar that they are not easily separated. There are usually three sternopleural bristles, but the middle one is often weak. The following key separates the forms I assign to this genus.

TABLE OF SPECIES

- 1.—Fourth abdominal segment with three large, shining black spots above apically. 2.
Fourth abdominal segment practically all pollinose, at most with two small, subshining black spots.....*pollenia*, n. sp.
 - 2.—Aristal pubescence distinctly shorter than the thickened base of the arista.....3.
Aristal pubescence fully as long as the thickened base.....*grisea* Villeneuve.
 - 3.—Frontal vitta of male linear, of female, not half as wide as one parafrontal.
caffa Macquart.
- Frontal vitta more than half as wide as parafrontal.....*pretoria*, n. sp.

Lamprometopia pollenia, new species

Readily recognized by the wholly pollinose fourth abdominal segment, although there is an indication of a pair of spots on this segment in the female. Length, 6 to 8.5 mm.

MALE.—Head black, silvery pollinose, the parafrontals with brassy tinge above; frontal vitta blackish, with trace of pale pollen above; front two-thirds as wide as one eye. Eleven pairs of frontals, the upper one or two pairs reclinate; three pairs of proclinate orbitals; ocellars moderately strong, proclinate or somewhat divergent; outer verticals strong. Cheeks one-third the eye-height; parafacials as wide as the facial depression, with scattered short hair. Palpi brown. Antennae black, the third segment twice as long as the second and narrower than it; arista pubescent, brown beyond the thickened base. Eyes thinly pilose.

Thorax cinereous pollinose, the mesonotum with yellow tinge, the usual five dark vittae present, all narrow except the outer ones. Normally three sternopleurals, the second sometimes absent.

Legs black. Wings cinereous hyaline; third vein with two or three basal bristles. Squamae whitish.

Abdomen cinereous pollinose above, the disc with yellow tinge, the venter almost all shining blackish. First segment with three very large, anteriorly connected shining black spots. Second segment with a rather narrow median black or brown vitta and a moderately large, subtriangular shining blackish spot toward each side; third segment similarly marked except that the median vitta is linear, and brown in color; fourth segment wholly pollinose, or with very small lateral black spots.

FEMALE.—Front as wide as one eye; upper frontal bristle sometimes simulating a reclinate orbital; palpi reddish brown; antennae brownish red basally, the third segment sometimes reddish brown. Abdomen with three shining black vittae composed of posteriorly widening spots, that extend the full length of the segments from posterior view, but are limited to the posterior half when seen from in front. Fourth segment wholly pollinose or with very small black spots.

TYPES.—Holotype, male, Pretoria, Transvaal, March 8, 1928 (H. K. Munro). Allotype, female, Pretoria, January 10, 1914. Paratypes, male and female, Pretoria, March 8, 1928 and January 2, 1914 (H. K. Munro). The holotype has been returned to Mr. Munro.

Lamprometopia grisea Villeneuve

Hoplocephalella grisea VILLENEUVE, 1916, Ann. S. Afr. Mus., XV, p. 509.

Black, the arista with pubescence longer than the basal swollen portion. Length, 4 to 5 mm.

MALE.—Front half as wide as one eye; eight or nine pairs of frontals, the upper simulating a reclinate orbital; three pairs of proclinate orbitals; ocellars weak, divergent; frontal vitta silvery white pollinose above. Head black, silvery white pollinose. Cheeks one-fifth the eye-height. Parafacials little more than half as wide as the facial depression, with sparse, short, black hair. Palpi black. Antennae brown, the third segment scarcely twice as long as the second and not as wide; arista thickened basally, the pubescence fully as long as the thickened base. Eyes sometimes practically bare.

Thorax cinereous pollinose, the black vittae somewhat obscure. Three sternopleurals, the lower weak.

Legs black. Wings cinereous hyaline; third vein with three or four basal bristles. Squamae whitish.

Abdomen cinereous pollinose above, with three shining black vittae, the seg-

mental spots widest posteriorly; spots on fourth segment large. Venter thinly cinereous pollinose.

FEMALE.—Front as wide as one eye; tip of second antennal segment luteous, the third segment as wide as the second; arista pubescence conspicuously longer than the basal thickened portion. Pollen of thorax and abdomen with yellowish tinge on the upper surface.

Male, Barberton, South Africa, May 22, 1913 (H. K. Munro); female, Pretoria, March 8, 1928 (Munro).

Lamprometopia pretoria, new species

Black; abdomen with three shining black vittae; arista very short pubescent. Length, 5 to 5.5 mm.

MALE.—Head black, rather silvery white pollinose. Front two-thirds as wide as one eye; nine pairs of frontals, the upper pair sometimes simulating a reclinate orbital; three pairs of proclinate orbitals; ocellars divergent or obliquely proclinate; outer verticals long. Cheeks one-fifth the eye-height. Parafacials somewhat narrower than the facial depression, with scattered short black hair. Palpi brown or reddish brown. Antennae black; third segment narrower than the second and about twice as long; arista short pubescent. Eyes with rather thin short hair.

Thorax cinereous pollinose, with the usual black vittae. Two or three sternopleurals, the median one weak or absent.

Legs black. Wings cinereous hyaline; third vein with two or three basal bristles. Squamae whitish.

Abdomen cinereous pollinose above, with three shining black vittae formed of anteriorly narrowed spots, those on the fourth segment usually not reaching the base of the segment. Venter shining black, sometimes more or less reddish toward the sides on the median half. Apical segments usually with yellowish tips.

FEMALE.—Front as wide as one eye; second antennal segment sometimes reddish or brownish red; the third segment as broad as the second.

TYPES.—Holotype, male, Pretoria, Transvaal, January 2, 1914. Allotype, female, Pretoria, January 5, 1916. Paratypes, two males, two females, Pretoria, January 10, 1914, September 8, 1914, December 16, 1913, and March 13, 1928, all collected by H. K. Munro.

PTERELLA DESVOIDY

As limited by Townsend (1935) this genus contains only one known species from Africa (*Setulia rubriventris* Villeneuve), and the two forms described in the following pages. The other species described in *Setulia* by Villeneuve are referable to the genus *Sphixapata* Rondani.

TABLE OF SPECIES

- 1.—Abdomen not or only obscurely reddish. 2.
Abdomen mostly reddish in ground color. *rubriventris* Villeneuve.
- 2.—Abdomen with brown median vitta. 3.
Abdomen with median shining black spots on second and third segments.
triseriata, n. sp.

- 3.—Antennae reddish (Europe).....*grisea* Meigen.
 Third antennal segment and arista black.....*africana*, n. sp.

***Pterella triseriata*, new species**

Black, the face and front yellowish in ground color. Length, 6 mm.

FEMALE.—Head white pollinose, the parafrontals somewhat yellowish above; frontal vitta luteous yellow, with a long prolongation of white pollen in front of the ocelli; nine or ten pairs of frontals; two pairs of proclinate orbitals and two or three reclinate orbitals above; ocellars moderately long; front three-fourths as wide as one eye. Occiput black in ground color except immediately below the vertex; cheeks black behind. Vibrissae conspicuously stronger than the adjacent bristles; parafacials almost as wide as the facial depression, with very small, yellow hairs. Antennae and palpi reddish, third antennal segment and arista blackish, the former more or less reddish at the base.

Thorax rich yellowish brown pollinose, with five rather obscure black vittae, the submedian pair obsolete on the posterior half; pleura yellowish cinereous pollinose; sternopleurals 1-1 or 1-1-1.

Legs black. Wings cinereous hyaline; squamae mostly tinged with brown.

Abdomen yellowish cinereous pollinose, brownish beneath, but from most views appearing chiefly shining black; apical third of the fourth segment shining black; first to third segments each with a large, suborbicular shining black spot in the middle and toward either side. Second segment with weak, appressed marginals, the third and fourth each with a row.

HOLOTYPE.—Female, Bloemfontein, South Africa, December 4, 1920 (H. E. Irving); returned to Mr. H. K. Munro.

***Pterella africana*, new species**

Related to *grisea* Meigen, but distinguished by the blackish third antennal segment and mostly shining fourth abdominal segment. Length, 6 to 7 mm.

FEMALE.—Head white pollinose, the parafrontals becoming yellow above; face and front yellow in ground color; the frontal vitta pale orange. Nine or ten pairs of frontals; two pairs of proclinate orbitals and one or two reclinate orbitals on each side; ocellars moderately long. Front less than half as wide as either eye. Occiput black except immediately below the vertex. Parafacials narrower than facial depression, with scattered, inconspicuous, pale hair. Palpi and antennae reddish; third antennal segment and arista black, the former reddish at the base; arista thickened to beyond the middle.

Thorax cinereous pollinose; mesonotum and scutellum with brown pollen, the former rather cinereous laterally; mesonotum with five indistinct, narrow, dark vittae, the submedian pair limited to the anterior half. Sternopleurals 1-1, a weak third sometimes present in front of the posterior.

Legs black, largely cinereous pollinose; posterior tibiae sparsely ciliate on basal three-fourths.

Wings cinereous hyaline; squamae yellowish, with slight brown tinge on disc.

Abdomen with cinereous pollen on the sides and basal half of the venter and light brownish pollen on the disc. The first segment is mostly shining, or very thinly pollinose on the disc, the second with a wide median brownish black vitta, the third with a more or less distinct brown vitta; fourth segment shining black, the basal third polli-

nose except laterally; second and third segments each with a large, oblique, shining black spot on either side. Second segment with appressed marginals, the third and fourth with erect row.

TYPES.—Holotype, female, Pretoria, South Africa, February 14, 1928 (H. K. Munro). Paratype, female, Uitenhage, South Africa, February 11, 1919 (H. K. Munro); returned to Mr. Munro.

AMOBIA DESVOIDY

DESVOIDY, 1830, Mem. Acad. Roy. Soc. Inst. France, II, p. 96.

Pachyophthalmus BRAUER AND BERGENSTAMM, 1889, Denkschr. Akad. Wien, LVI, p. 117.

The following Old World species are represented in the collection before me.

TABLE OF SPECIES

- 1.—Sternopleura with eight or more hairs near the bristles.....2.
- Sternopleura with only two or three hairs near the sternopleurals. *africa*, n. sp.
- 2.—The brown mesonotal vittae extend almost to the apex of the scutellum; abdominal markings dull. *capensis*, n. sp.
- Base of scutellum broadly brown (Europe)..... *signata* Meigen.

Amobia africa, new species

Black, with cinereous pollen. Length, 4 to 7 mm.

MALE.—Head white pollinose. Front one-third as wide as one eye; frontal vitta black; ten to twelve pairs of frontals, the upper two reclinate; about ten pairs of parafrontal hairs, the tiny hairs not numerous; ocellars moderately strong. Cheeks with sparse black hair. Parafacials with tiny black hairs, about as wide as the third antennal segment. Palpi and antennae blackish; arista thickened on basal third.

Mesonotum with three shining brown vittae that extend almost to the apex of the scutellum. Three pairs of postsutural dorsocentrals; one or two pairs of rather short presutural acrosticals. Sternopleurals 2-1, the lower short.

Legs black, the pulvilli of median size; posterior tibiae sparsely ciliate.

Wings cinereous hyaline; third vein with two basal bristles. Squamae whitish.

Abdomen with cinereous pollen; with a rather narrow median brown vitta that may be narrowly interrupted on the front of each segment and broader on the posterior border, and a wider, irregular, vitta on either side the spots comprising it partly contiguous over part of their width; on the fourth segment the shining brown spots are limited to the apical half, and may be contiguous. The first and second segments each bear a pair of median marginals, the third and fourth with complete rows. Venter rather thickly pollinose, with a row of large, diffuse brown spots on each side.

FEMALE.—Median brown vitta on scutellum paler in color; pulvilli small; abdomen more tessellate.

TYPES.—Holotype, male, and allotype, female, Hartley, Southern Rhodesia, December, 1930. Paratypes, four females, Hartley, November and December (no collector label), and one male, Gatooma, Southern Rhodesia, January, 1928 (A. Cuthbertson).

***Amobia capensis*, new species**

Black, cinereous pollinose, the brown mesonotal vittae extending well onto the scutellum. Length, 5.5 to 8 mm.

MALE.—Head white pollinose, the parafrontals with yellowish tinge; frontal vitta brown. The short parafrontal hairs are quite conspicuous and arranged in two irregular rows that extend to below the middle of the parafacials; row of parafrontal hairs rather fine. Ocellars moderately long. Cheeks with short black hair. Parafacials about as wide as third antennal segment. Palpi and antennae blackish; arista thickened on basal third.

Mesonotum with three wide brown vittae that extend onto the scutellum, the middle one paler posteriorly. Mesonotal hair moderately long; only one pair of presutural acrosticals strikingly longer than the hair, the other two pairs poorly differentiated. Sternopleurals 2-1, the lower weaker; eight or nine fairly long hairs near the bristles.

Legs black; pulvilli of medium size; posterior tibiae sparsely ciliate.

Wings cinereous hyaline; third vein with three basal bristles. Squamae whitish.

Abdomen black, with an entire median brown vitta that widens posteriorly on each segment, and an irregular, broad lateral vitta formed of brown spots that are narrowly separated on the bases of the segments. The brown pollinose areas are moderately shining in some views. Chaetotaxy as in *A. africa*. Venter with transverse brown spots on the sides of the segmental apices.

FEMALE.—The tiny hairs of the front and face are not conspicuous; hair of the thorax short; pulvilli small; median abdominal vitta wider.

TYPES.—Holotype, male, Durban, Natal, 1912. Allotype, female, Pretoria, Transvaal, October 17, 1926 (H. K. Munro), in collection of South African Department of Agriculture.

MILTOGRAMMA MEIGEN

Three African species belonging to this genus are before me. They may be separated as follows.

TABLE OF SPECIES

- | | |
|--|------------------------------|
| 1.—Mesonotum pollinose, at least in the middle anteriorly..... | 2. |
| Mesonotum shining black..... | <i>cuthbertsoni</i> , n. sp. |
| 2.—Mesonotum wholly pollinose..... | <i>munroi</i> , n. sp. |
| Mesonotum with pollinose vittae in front of the suture..... | <i>hirtimanum</i> Bezzi. |

***Miltogramma cuthbertsoni*, new species**

Mostly shining black above, the abdomen with deeply excised pale pollinose fasciae. Length, 7 mm.

MALE.—Head white pollinose, the front with yellowish tinge; occiput black in ground color except just below the vertex; front and face yellow. Front one-third as wide as either eye, the vitta dull orange; bristles weak, especially above; a pair of ocellar hairs separated from the posterior row; outer verticals relatively long; upper frontal strong and reclinate. Cheeks with short, fine yellow hair; parafacials three-fourths as wide as the facial depression, with minute yellowish hairs. Palpi yellowish. Antennae pale reddish, the third segment one-half longer than the second; arista black, thickened on the basal half.

Thorax shining black, the upper half of the pleura and the sides of the mesonotum cinereous white pollinose; mesonotum with bristles on only the posterior and lateral margins. Three sternopleurals, the anterior weak or even absent. Scutellum with the apex broadly reddish.

Legs black; pulvilli short; anterior tarsi without long hair.

Wings hyaline; third vein with two basal bristles. Squamae white.

Abdomen shining black; second and third segments with the basal fourth cinereous pollinose, the pollen strongly, triangularly produced posteriorly on each side of the middle and more so laterally; the ground color beneath the pollinose triangles is more or less reddish; on the fourth segment the pollen extends more or less distinctly to the apex. Middle of the venter broadly pollinose on the whole length. First segment dorsally with some pollen basally and on the sides. To the naked eye the pollen appears white, but under magnification it has an ochraceous tinge. Third and fourth segments each with row of erect marginals.

TYPE.—Male, Salisbury, Southern Rhodesia, September 20, 1932 (A. Cuthbertson).

***Miltogramma hirtimanum* Bezzi**

BEZZI, 1912, Rev. Zool. Afr., II, p. 80.

Male, Eden, Cameroons (J. A. Reis). Originally described from the Belgian Congo.

***Miltogramma munroi*, new species**

Differs from *hirtimanum* Bezzi in having the mesonotum trivittate. Length, 7 to 8.5 mm.

MALE.—Head yellowish in ground color, the occiput black; pollen white, yellow on the front and parafacials; frontal vitta pale orange. About fifteen pairs of rather weak frontals, the upper pair strong and reclinate; three pairs of weak orbitals; ocellars replaced by two rows of hairs. Cheeks with short, fine whitish hair; parafacials with tiny whitish hairs. Palpi and basal antennal segments reddish; third antennal segment brown with reddish base; arista black, the apical third sometimes brown.

Thorax cinereous pollinose; mesonotum with three broad black vittae that extend almost to the apex of the scutellum, and a pair of narrow, submedian black vittae on the anterior half; hair rather long, the bristles on the disc not strikingly differentiated. Sternopleurals 1-1 or 1-1-1. Scutellum with almost the apical half reddish yellow.

Legs black; pulvilli small; intermediate segments of the anterior tarsi subequal in length, the second with four long, bristle-like hairs above, the third with two; posterior tibiae sparsely ciliate on basal two-thirds.

Wings cinereous hyaline; third vein with two basal bristles. Squamae whitish.

Abdomen mostly reddish beneath, dark apically, the reddish color extending broadly onto the dorsum over at least the basal half of the second and third segments, the black posterior bands sometimes almost eliminated on the sides of the first segment and weak on the second. The cinereous pollen covers the basal two-thirds of the segments except for a narrow median vitta, adjacent to which the pollen is produced back to the posterior fourth of the second and third segments. The median

vitta is absent on the fourth segment, the pollen here sometimes covering only the basal half. There are erect marginals only on the apical two segments, those on the second segment being appressed and weaker.

FEMALE.—Hair of thorax shorter, the bristles slightly more evident. The red color is but little evident on the abdomen and the pollen is limited to the basal half of the segments.

TYPES.—Holotype, male, and allotype, female, Barberton, Transvaal, August, 1913 (L. S. Hardenberg). Paratypes: male, Barberton, August 12, 1916 (H. K. Munro), and male, Pretoria, Transvaal, December 13, 1919 (Munro). The types will be returned to Mr. Munro.

Tachinidae

HYALOMYA DESVOIDY

Without specimens it is not possible to prepare a satisfactory table for the separation of all the described species from Africa so only those represented in the collections before me are included.

TABLE OF SPECIES

- 1.—Costa with ordinary bristles at base.....2.
Costa with long, dense, scalelike basal bristles.....4.
- 2.—Oral margin very strongly produced and somewhat snoutlike.....3.
Oral margin only slightly produced.....*cuthbertsoni*, n. sp.
- 3.—Apical cell distinctly wider than the discal cell in both sexes; wing of male without brown tinge apically.....*nasuta* Loew.
Apical cell not as wide as discal cell; wing with brown cloud in front toward the apex.....*capensis* Schiner.
- 4.—Anterior femora with scalelike bristles at least above.....5.
Anterior femora without scalelike hairs or bristles.....*negator*, n. sp.
- 5.—Wings of the male usually broadly hyaline apically; abdomen with subsquamose hairs only ventrally.....6.
Wings of male distinctly brownish on the whole length in front of the third vein; abdomen with squamose hairs on the sides of the dorsum.....*argentifrons* Walker.
- 6.—Wings deep brown in front of the fifth vein, the discal cell wholly brownish.
munroi, n. sp.
Wings pale brownish yellow anteriorly.....*victoria*, n. sp.

Hyalomya cuthbertsoni, new species

Black, the abdomen with cinereous cross-bands in the female; thorax rather thinly cinereous pollinose; oral margin not strongly projecting. Length, 4.5 to 7 mm.

MALE.—Head silvery white pollinose; hair black, white on the cheeks and lower occiput; vertical triangle without white pollen, the eyes practically contiguous for two-fifths the length of the front, the upper facets enlarged. Proboscis stout; palpi reddish. Antennae black, the third segment one-half longer than wide; arista black, thickened on the basal fourth.

Thorax cinereous pollinose, the pollen thin on the dorsum except on the humeri and notopleura; basal half of the scutellum without pale pollen. Hair wholly black; usually only one sternopleural, the anterior one weak when present.

Legs black, black-haired; claws and pulvilli long.

Wings hyaline, rather broadly yellowish basally, some of the veins yellow on the basal half of the wing; apical cell not broadened, the posterior cross-vein near the middle of the apical cell. Squamae cinereous, the halteres reddish yellow.

Abdomen shining black, the sides, apex and venter with cinereous pollen; sides of the basal two segments and most of the under surface, including the genitalia, reddish. Hair black, white on the under surface except at the sides.

FEMALE.—Squamae more luteous; third and fourth abdominal segments cinereous pollinose, the second with a linear, incomplete basal fascia that widens laterally and is visible only from posterior view; abdomen sometimes wholly black.

TYPES.—Holotype, male, and allotype, female, Gatooma, Southern Rhodesia, May, 1934, from cage of *Dysdercus fasciatus* (No. 3834A). Paratype, female, Peddie, East London, Cape Province, May, 1924 (H. K. Munro).

***Hyalomya nasuta* Loew**

LOEW, 1852, Bericht. Kongl. Akad. Berlin, p. 660; 1862, Peter's 'Reise Mozamb.,' V, p. 26.

Male and female, Salisbury, Southern Rhodesia, November 4, 1924; female, East London, South Africa, April 26, 1925 (H. K. Munro); female, on daisy, Salisbury, June 14, 1932 (A. Cuthbertson).

The two sexes show no difference in color. I am not entirely certain that these specimens represent *nasuta* as the wings are not brownish basally and in front, but are luteous.

***Hyalomya capensis* Schiner**

Alophora capensis SCHINER, 1868, 'Novara Reise,' Dipt., p. 337.

Male, Barberton, November 9, 1917 (L. S. Hardenberg); two females, East London, August 12, 1922, and April 25, 1925; female, Peddie, December 27, 1921; female, Egerton, January 16, 1925, and female, Umdanzani, East London, Cape Province, May, 1924 (H. K. Munro).

The male is readily distinguished from *nasuta* by the almost wholly white pollinose mesonotum but the females can be separated only by the distinctly narrower apical cell in this species.

***Hyalomya argentifrons* Walker**

Phasia argentifrons WALKER, 1849, 'List. Dipt. Brit. Mus.,' IV, p. 691.

Male and female, Weenen, Natal (H. P. Thomasset); two males and one female, Barberton, August, 1913, and September 11, 1919 (Munro Collection).

Walker's description is very poor since the wings are hyaline on about the posterior half, the luteous oral margin is strongly produced and there are scales on the femora and abdomen in addition to those on the wings.

The female has hyaline wings and almost all silvery-gray pollinose abdomen and lacks the scales except on the wings.

Hyalomya munroi, new species

Wings brown, whitish basally behind, the apex broadly hyaline; abdomen with long scalelike pile laterally. Length, 5 mm.

MALE.—Head black, white pollinose; occipital cilia fine, black, the cheeks with white hair. Front with short, weak bristles and an irregular row of hairs extending from the antennae almost to the ocelli, the frontal vitta linear above, strongly widening anteriorly; eyes separated by twice the width of the anterior ocellus; vertical triangle with black hair. Anterior oral margin luteous, very strongly produced. Palpi brownish red; proboscis as long as the head. Antennae black; third segment elongate oval; arista whitish, black and thickened on the basal third.

Thorax black in ground color. Mesonotum with cinereous pollen, becoming rather ochreous on the disc, the posterior third shining black except for a median stripe and an incomplete transverse prescutellar band, the black extending broadly forward to the suture inside the lateral margins; scutellum black, slate gray on the apical half. Pleura cinereous pollinose. Hair black, dense and scalelike on the humeri, upper and posterior borders of the mesopleura and on the upper part of the pteropleura.

Legs black; coxae cinereous pollinose, and white-haired, the middle pair with some white scales behind. Hair black, white on the basal half of the posterior surface of the middle femora and on the base of the front femora posteriorly; anterior femora with two rows of black scales on the apical half of the lower surface and dense, long brown scales above; middle femora with two complete rows of blackish scales below and a patch of posterodorsal scales apically; posterior femora with long brown scales above and on the posteroventral surface, the anteroventral surface with isolated shorter scales; middle femora with some white scales basally; posterior tibiae ciliate above with short black scales.

Wings brown, whitish or grayish white behind the fifth vein, the apex broadly hyaline; base of the costa with long, curved black scales, the costa with short, squamose hairs before the first vein. Apical cell broader than the discal cell, the vein closing the discal cell unusually close to the wing margin.

Abdomen shining greenish black, the fourth segment bordered with cinereous pollen except in the middle anteriorly, the pollen forming large basal triangles on the sides of the segment; venter cinereous pollinose; sides of the abdomen with long brown scales above and with yellow ones below on the fourth segment, the hair black above, whitish on the sternites.

HOLOTYPE.—Male, Muizenberg, Cape Peninsula, South Africa, November 16, 1931 (H. K. Munro); returned to Mr. Munro.

This species is rather similar to *argentifrons* Walker and has wide wings. The venation is different. Since the females are very different from the males in appearance it will probably be difficult to separate the female of *munroi* from *argentifrons*; in this sex the wings are narrower and wholly hyaline and the abdomen mostly cinereous pollinose.

***Hyalomya victoria*, new species**

Wings hyaline, dilute brownish on the basal half in front of the fifth vein, the base of the costa with scales; femora with scales above; black, the strongly produced oral margin luteous. Length, 4 mm.

MALE.—Head silvery white pollinose, the hair black, white on the cheeks and lower occiput. Eyes separated by the width of the anterior ocellus; frontal vitta brownish red, linear above; a single row of frontal hairs and bristles. Anterior oral margin strongly produced forward, luteous. Palpi reddish yellow. Antennae black; third segment elongate oval; arista yellowish beyond the thickened basal fourth.

Thorax black, cinereous pollinose, on the mesonotum with a pair of broad, diffuse, brownish pollinose vittae, the posterior half of the mesonotum and the broad sides as far forward as the suture shining black. Hair black. Scutellum with the broad apex thinly cinereous pollinose. Hair on the sides of the mesonotum in front and on the mesopleura long and slightly squamose; a single sternopleural.

Legs black; all the femora with squamose hairs above, the posterior pair with a posteroventral row; coxae cinereous pollinose.

Wings wide, hyaline, dilute brownish on about the basal half in front of the fifth vein, the brown color not nearly filling out the discal cell; apical cell wider than the discal cell; costa with scales on the basal section; alula hyaline. Squamae cinereous, with yellow border. Halteres yellow.

Abdomen black, the basal two segments reddish brown pollinose, the first more or less cinereous basally, the second shining posteriorly especially toward the sides where the pollen is strongly narrowed; lateral margins and apex of the abdomen cinereous pollinose. Venter with cinereous pollen, the pile on the sternites white, on the tergites partly brownish yellow.

TYPES.—Holotype, male, Victoria, Southern Rhodesia, August, 1932 (A. Cuthbertson). Paratypes, two males, Salisbury, Southern Rhodesia, June 14, 1932, on daisy (A. Cuthbertson).

***Hyalomya negator*, new species**

Black, the wings yellowish brown to beyond the middle on the anterior half, the costa with scales basally; legs without scales. Length, 4.5 mm.

MALE.—Head silvery white pollinose, the hair black, white on the cheeks and lower occiput. Eyes practically touching for a short distance, the frontal vitta black; a single row of frontals. Oral margin strongly produced, shining black. Palpi brown, with reddish apices. Antennae black; third segment elongate oval, the upper apex somewhat angulate; arista black on the thickened basal fourth, the apical three-fourths luteous.

Mesonotum with argenteous pollen on the anterior half except on the broad sides; broad apex of scutellum argenteous from posterior view; pleura cinereous pollinose; hair black.

Legs black; anterior coxae cinereous pollinose; no scalelike hairs on the legs.

Wings brownish yellow, fading to hyaline apically and posteriorly; apical cell wider than the discal cell; basal section of the costa clothed with contiguous scalelike bristles. Squamae brown; halteres reddish yellow.

Abdomen bronze-black, the third and following segments clothed with silvery pollen, the hairs arising from dark dots. Venter probably cinereous pollinose (partly destroyed), the genitalia black.

HOLOTYPE.—Male, Matetsi, Southern Rhodesia, January 7, 1935 (R. H. R. Stevenson), No. 3998.

Chaetolydella natalensis Villeneuve

VILLENEUVE, 1916, Ann. S. Afr. Mus., XV, p. 490.

Male and two females, Krantz Kloof, Natal (W. J. Haygarth).

Cuphocera hova Villeneuve

Cuphocera varia hova VILLENEUVE, 1916, Rev. Zool. Afr., IV, p. 191.

Male and female, Maritzburg, S. Africa, March, 1908 (Cl. Fuller).

It is not possible at present to decide the identity of this form. Villeneuve differentiated it from *varia* Fabricius, described from Java, by the more abundant abdominal pollen, a character of little value. The male genitalia are quite different from *varia*. *C. argyrocephala* Macquart, described from northern Africa and recorded from southern Europe, has been placed as a synonym of *varia* by Villeneuve, but is probably distinct. *C. hova* may be identical with *argyrocephala*.

NEMORAEA DESVOIDY

The separation of the African species belonging to this genus is difficult at present owing to the absence of comparative tables. All of the species have the lower lobe of the squamae pilose above, although, in some species the hair is limited to the outer fourth.

TABLE OF SPECIES

- 1.—Four postsutural dorsocentrals.....2.
Three postsutural dorsocentrals.....*longicornis* Villeneuve.
- 2.—Second and third abdominal segments without discals.....3.
Second and third abdominal segments with discals.....*discoidalis* Villeneuve.
- 3.—Legs reddish brown or brown, the coxae in part, trochanters and apices of the femora sometimes reddish yellow.....4.
Femora wholly reddish, the tibiae and tarsi sometimes blackish or brown.....5.
- 4.—Coxae reddish yellow; black, the abdomen with three whitish pollinose fasciae (*capensis* Schiner?).....*moerens* Villeneuve.
Coxae blackish; abdomen broadly reddish laterally (Europe)..*pellucida* Meigen.
- 5.—Mesonotum with two conspicuous, broad black vittae.....6.
Mesonotum with very narrow and inconspicuous vittae, posterior tibiae rarely partly brown.....7.
- 6.—Scutellum mostly black.....*miranda* Villeneuve.
Scutellum wholly yellowish.....*intacta* Villeneuve.
- 7.—Abdomen wholly shining ferruginous red; wings evenly brown, without yellowish base, becoming paler posteriorly.....*fortuna*, n. sp.

- Abdomen usually with black vitta, always with pollinose fasciae; wings not uniformly brownish.....8.
- 8.—Lower squamal lobe almost wholly pilose above.....9.
Lower squamal lobe pilose only on the outer fourth....*infoederata* Villeneuve.
- 9.—One pair of discal scutellars.....10.
Two pairs of discal scutellars; posterior tibiae almost evenly closely ciliate.
capensis Desvoidy.
- 10.—Parafacials not wider than the third antennal segment.....11.
Parafacials considerably wider than the third antennal segment.
rubellana Villeneuve.
- 11.—Sides of the mesonotum reddish; tarsal segments without black apices.
completa, n. sp.
Sides of the mesonotum blackish; tarsal segments with black apices.
incerta, n. sp.

Nemoraea longicornis Villeneuve

VILLENEUVE, 1916, Ann. Soc. Ent. France, XLV, p. 201.

Mostly rusty reddish; anterior tibiae with a bristle at the apical third of the posterior surface; three pairs of strong postsutural dorsocentrals; scutellum haired to the lower edge. Length, 7.5 mm.

FEMALE.—Front brown, the parafrontals with paler pollen; two pairs of orbital bristles and eight or nine pairs of frontals, the upper pair reclinate; ocellars long; a secondary pair of rather long ocellars situated behind the ocellar triangle, the post-vertical bristles weak; verticals and outer verticals long and strong. Occiput blackish, cinereous pollinose, the hair black, yellowish in the middle below. Cheeks about two-fifths as wide as the eye-height, bearing sparse, black hair. Proboscis rusty reddish; palpi reddish yellow. Antennae reddish, the third segment mostly brown; arista brown.

Thorax rusty reddish, the mesonotum with a rather broad median black vitta on the anterior half. Pollen of the mesonotum cinereous yellow, from frontal view leaving a pair of very broad, apparently bare vittae on the anterior half, from posterior view with these vittae appearing whitish and dividing three pale pollinose vittae, the median one narrow; pollen of the pleura mostly cinereous white. One pair of strong acrostical bristles in front of the suture and another before the scutellum; dorsocentrals 2-3; three pairs of marginal scutellars and a pair of discals; scutellum haired to the lower edge. Propleural hair yellow; two sternopleurals.

Legs reddish yellow, the tarsi brown; hair and bristles black; anterior tibiae with a row of five anterodorsal bristles and one posterior bristle.

Wings cinereous hyaline; veins brown; third vein bristled almost to the anterior cross-vein. Squamae yellowish brown; suprasquamal declivities with some yellowish hairs.

Abdomen rusty reddish yellow, with black hair; third segment with moderately strong marginals, the others with weak ones, the first segment lacking bristles toward the middle.

Female, N. W. Tanganyika, 1910 (Grauer), in Vienna Museum of Natural History.

Nemoraea discoidalis Villeneuve

VILLENEUVE, 1916, Ann. Soc. Ent. France, XLV, p. 198.

Three males, Uganda: Entebbe, April 1, 1914 (3857); Tero Forest, April 30, 1911 (2383); Kampala, 17, X, 1915, and one female, Nkokon-pira, 23, XII, 1910, all collected by Mr. C. C. Gowdey.

Nemoraea miranda Villeneuve

VILLENEUVE, 1916, Ann. Soc. Ent. France, XLV, p. 200.

Male, Kampala, Uganda, December 8, 1916 (C. C. Gowdey); male, Entebbe, Uganda, March 10, 1911 (C. C. Gowdey).

Nemoraea intacta Villeneuve

VILLENEUVE, 1916, Ann. Soc. Ent. France, XLV, p. 201, 1916.

Female, Paiata, Liberia, October 19, 1926 (J. Bequaert).

Nemoraea fortuna, new species

Readily distinguished from the other African species by the shining, reddish ferruginous abdomen. Length, 10 to 13 mm.

MALE.—Head whitish pollinose; front and occiput black in ground color, the face and cheeks reddish yellow. Front not greatly wider than the ocellar triangle, bearing twelve to fourteen pairs of frontals the parafrontals with sparse hair; ocellars scarcely developed; outer verticals absent. A partial row of hairs behind the occipital cilia; black hair of the cheeks broadly connected behind with the hairs behind the eyes, the pile pale yellowish. Cheeks almost half as wide as the eye-height, with two weak bristles below. Parafacials narrower than the third antennal segment; facial ridges with fine bristles on the lowest third. Palpi broken off in male, in female reddish yellow, with short black bristles above and a few long fine bristles on the outer edge. Antennae reddish; arista brown, pubescent.

Thorax black, rather thinly cinereous pollinose; humeri and pleura mostly reddish; scutellum shining ferruginous red; bearing one pair of discals and four pairs of marginals, hair wholly black; acrosticals, 3-2; dorsocentrals, 3-4; sternopleurals, 1-1.

Legs reddish, the tarsi scarcely darkened; posterior tibiae sparsely short ciliate, with two longer bristles in the row.

Wings smoky brown, becoming distinctly paler posteriorly. Squamae brownish, the lower lobe haired above on the outer fourth.

Abdomen shining ferruginous red, the bases of the segment with just a trace of pale pollen; hair wholly black. Fourth segment with scattered, strong discals, the second segment with a pair of marginals, the third with a row. Genitalia reddish, the posterior forceps ferruginous.

FEMALE.—Front four times as wide as the ocellar triangle, bearing two pairs of discals and about nine pairs of frontals; sides of mesonotum more or less broadly reddish; posterior tibiae with three or four long anterodorsal bristles; genital segments more or less ferruginous.

TYPES.—Holotype, ♂, Tshibinda, Tanganyika, August 21-27, 1931 (Alice Mackie). Allotype, female, and paratype, female, Burunga, Congo (J. Bequaert). The paratype is deposited in the British Museum of Natural History.

Nemoraea infoederata Villeneuve

VILLENEUVE, 1916, Ann. Soc. Ent. France, XLV, p. 199.

Female, Uganda, Ruwenzori, May 16, 1911 (2692), collected by Mr. C. C. Gowdey.

Nemoraea capensis Desvoidy

Meriana capensis DESVOIDY, 1830, Mem. Acad. Roy. Sci. Inst. France, II, p. 71.

Nemoraea rufipes MACQUART, 1843, 'Dipt. Exot.,' II (2), p. 54 (f.).

Readily distinguished from any species known to me by the white-haired, white squamae and the four posterior dorsocentral bristles. Rusty reddish, the front, occiput above, mesonotum except the sides, apices of tarsi and abdominal markings, black. Length, 13 mm.

FEMALE.—Front a little over two-thirds as wide as eye, strongly widened anteriorly. Head cinereous pollinose, the parafrontals thinly so above; frontal vitta rusty reddish, much narrower than either parafrontal; 12 to 15 frontals, the upper pair strong and reclinate; three pairs of orbitals; ocellars and postocellars rather weak; outer verticals about half as long as verticals. There is a row of tiny bristles inside the black occipital cilia which stop short of the lower edge of the eyes, but beneath, several rows of short, black, bristly hairs connect them with the bristles on the cheeks; occipital pile pale cinereous. Cheeks as wide as half the eye-height, bristly on the lower three-fourths. Oral vibrissae situated moderately above the oral margin, the facial ridges bristled on almost the lower half. Parafacials as wide as the length of the second antennal segment, wider above and below. Palpi reddish yellow, with black bristles. Antennae reddish, reaching to below the middle of the face, the third segment but little longer than the second, broadened apically; arista reddish, brown on the slender apical half, the penultimate segment slightly longer than wide. Eyes with sparse short yellowish pile.

Thorax gray pollinose, the vittae moderately distinct, the median pair diverging posteriorly; a short median one behind. Only the sides of the mesonotum are dark reddish, narrowly so behind. Scutellum wholly dull reddish, with four pairs of marginals, including the smaller, cruciate apical pair, and two pairs of discals. Acrosticals, 3-3; dorsocentrals, 3-4; sternopleurals, 1-1.

Legs reddish, the tarsi blackened from the apex of the first segment, although the base of the second may be broadly reddish.

Wings conspicuously tinged with gray, broadly yellowish in front on the basal half. Third vein bristled one-third the distance to the small cross-vein; no distinct appendage at the bend of the fourth vein.

Hollow of the first abdominal segment and a broad median vitta on the second and third, blackish, the vitta inclined to broaden and cover the broad posterior margins of the segments, on the third segment, narrowed basally where it is much narrower than on the preceding segment. First two segments without dorsal bristles; third with a pair of marginals and a row of marginals toward either side; fourth with two rows of bristles on the apical half and a terminal row of finer ones. Sternites reddish, each with one or two pairs of bristles.

Five females from South Africa, Pretoria, Feb. 21, 1913, and April 22, 24, 1917, collected by Mr. H. K. Munro.

Nemoraea rubellana Villeneuve

VILLENEUVE, 1913, Rev. Zool. Afr., III, p. 28.

Many specimens from Kabete, British East Africa, September 15, 16, 1918 (T. J. Anderson), and Narok, Masai Reserve, March 27 (Captain A. O. L. Luckman).

Nemoraea completa, new species

Abdomen reddish, with tapering black median vitta on the first three segments; squamae with black hairs scattered over the whole upper surface of the lower lobe; legs wholly reddish. Length, 14 mm.

MALE.—Rusty reddish except the front, occiput above and abdominal vitta. Head shining pale yellowish pollinose, the front and occiput above with more grayish pollen; parafrontals rather thinly pollinose, for the most part narrower than the rusty brownish frontal vitta; frontals strong, ocellars fairly strong, outer verticals absent. Front about one-fourth as wide as eye, widening anteriorly; frontal hairs black, short, evenly distributed. Occipital cilia reaching the lower fifth of the eyes, with a row of tiny black bristles between them and the orbits; occipital pile yellow. Cheeks slightly over half as wide as eye-height, clothed with bristly black hairs which are limited in front by a row of bristles. Vibrissae situated slightly above the oral margin, the ridges with bristles on the lower third and a secondary row of hair-like bristles outside them. Parafacials a little wider than the third antennal segment, somewhat widened above; facial carina well developed, rounded. Palpi reddish, with black bristly hairs. Antennae reddish, the third segment mostly tinged with brown and thinly pale pollinose, about as long as the second segment and scarcely as wide, the apex rounded; arista reddish, brown on the apical half, short pubescent, the penultimate segment longer than wide.

Thorax rather thinly grayish pollinose, the vittae obscure; sides and posterior border of mesonotum dark reddish, humeri paler. Acrosticals 3-2, dorsocentrals, 3-4; sternopleurals, 1-1; scutellum with five pairs of fairly strong marginals, including the cruciate apicals, and a weak discal pair. Hair of the thorax wholly black.

Legs wholly reddish, the tarsi appearing somewhat darker on account of the coarse, short black hair; no pale hairs on coxae or legs; pulvilli elongate, yellow.

Wings grayish posteriorly and apically, luteous basally, anteriorly and along the veins; third vein with short bristles extending halfway to the small cross-vein; no appendage at angulation of fourth vein. Squamae yellowish, a few yellow hairs exteriorly and basally. Halteres yellow.

Abdomen shining, the very narrow segmental bases white pollinose from posterior view; the black vitta ends at the apex of the third segment. Second segment with a pair of rather weak marginals, third with a row of eight, fourth with a median row of discals and a marginal row, the two joined laterally by one or more bristles, the apical row weak and erect. Genitalia red. Sternites with numerous long, hairlike bristles.

TYPES.—Holotype, male, Uganda, Entebbe, April 1, 1914 (C. C. Gowdey); in the British Museum of Natural History. Paratype, male, Chirinda, Southern Rhodesia, October–November, 1911 (G. F. M. Swynnerton).

This species is closely related to *rubellana* Villeneuve but is readily distinguished by the narrower parafacials and subciliate posterior tibiae.

Nemoraea incerta, new species

Related to *Miranda* Villeneuve but without the strong black mesonotal vittae. Length, 12 mm.

MALE.—Front, occiput and parafacials black in ground color, rather thickly white pollinose. Front rather narrow, not three times as wide as the ocellar triangle; about ten pairs of moderately strong frontals; ocellars long; hair of parafrontals rather fine. Occipital cilia extending to the black-haired cheeks; occipital pile pale yellowish. Cheeks a little more than one-half as wide as the eye-height. Parafacials without hairs above. Vibrissae long, the ridges with four or five bristles on the lower half. Palpi reddish, with short black hair, the outer edge with several long, fine bristles. Antennae reddish yellow, the third segment and arista mostly brown. Parafacials not as wide as the third antennal segment. Eyes with pale pile.

Thorax black, cinereous pollinose, with four incomplete, very narrow vittae; humeri and scutellum reddish yellow; hair wholly black. Acrosticals 3-2; dorso-centrals 3-4; sternopleurals 1-1; one pair of discal scutellars and four pairs of marginals, the apical pair cruciate.

Legs yellowish red, the tarsi black, tibiae and basal tarsal segment reddish brown or at least darker than the femora; hair wholly black; posterior tibiae not ciliate.

Wings brown, the apex and posterior border becoming cinereous-hyaline, the base rather yellowish in front.

Abdomen black above, the sides of the second and third segments very broadly rusty reddish yellow, leaving a broad black median vitta that expands on the third segment to occupy almost the posterior third, the black posterior fascia expanding at the sides; second segment with a small posterior triangle of black on each side. Basal half or less of the segments pale yellowish pollinose, the fourth pollinose on its whole length laterally. Under surface reddish yellow, the genitalia black and reddish. Hair black; fourth segment with a row of discals, the others with paired marginals.

HOLOTYPE.—Male, Eden, Cameroon (J. A. Reis).

